

Meeting of the Technical Steering Committee of the Akraino Edge Stack Project

July 26, 2018

6:00 a.m. PT/9 a.m. ET



Antitrust Policy Statement

- Meetings of the Akraino Edge Stack Project involve participation by industry competitors, and it is the intention of the Project to conduct all of its activities in accordance with applicable antitrust and competition laws. It is therefore extremely important that attendees adhere to meeting agendas, and be aware of and not participate in any activities that are prohibited under applicable U.S. state, federal or foreign antitrust and competition laws. Examples of types of actions that are prohibited at Akraino Edge Stack Project meetings and in connection with Akraino Edge Stack Project activities are described in the The Linux Foundation Antitrust Policy. If you have questions about these matters, please contact your company counsel or Andrew Updegrove, of the firm of Gesmer Updegrove LLP, which provides legal counsel to The Linux Foundation.
- Linux Foundation Antitrust Policy:
<https://www.linuxfoundation.org/antitrust-policy>.

Dial-in Information

Join from PC, Mac, Linux, iOS or Android: <https://zoom.us/j/526556412>

Or Telephone: +1 855 880 1246 (Toll Free) or +1 877 369 0926 (Toll Free)

- Meeting ID: 526 556 412
- *6 to mute/unmute your phone
- International numbers available: <https://zoom.us/u/c3GCo07kV>
- Time Zone Converter: <http://www.thetimezoneconverter.com/>

Agenda

- › 6:00-6:10 - Round Table Introduction
- › 6:10-6:30 - Akraino Overview & Baseline Information - Arpit Joshipura, LF
- › 6:30-6:50 - Discussion on Scope, including seed code, release ambition of Akraino (blueprints/integration, etc.) - Kandan Kathirvel, AT&T
- › 6:50-7:00 - TSC Structure & Initial Processes - Annie Fisher, LF
 - › Review of TSC Structure
 - › Community Considerations for TSC
 - › TSC Chair Election
 - › Future Meetings & Communication Channels

Welcome & Round Table Introductions

- Welcome message from Arpit Joshipura, General Manager, The Linux Foundation
- Introduction of members of the Technical Steering Committee

TSC Voting Member Director

Member Company	Voting Member Name	Contact info
AT&T	Kandan Kathirvel	kk0563@att.com
Ericsson	Torbjörn Keisu	torbjorn.keisu@ericsson.com
Huawei	Wenjing Chu	Wenjing.Chu@huawei.com
Intel	Jenny Koerv	jenny.koerv@intel.com
Inwinstack	Thor Chin	thor.c@inwinstack.com
Juniper	Sukhdev Kapur / Qasim Arham (7/26 alternate)	sukhdev@juniper.net / qarham@juniper.net
Nokia	Tapio Tallgren / Adrian Peret (7/26 alternate)	tapio.tallgren@nokia.com / adrian.peret@nokia.com
NTT	Takeshi Kawahara	kuwahara.takeshi@lab.ntt.co.jp
Radisys	Prakash Siva	psiva@radisys.com
Red Hat	Frank Zdarsky	fzdarsky@redhat.com
WindRiver	Jim Einarsson	jim.einarsson@windriver.com

Current Membership



The New Intelligent Edge Akraino Project Overview

Arpit Joshipura

GM, Linux Foundation

July 2018



Akraino Announcement March-June 2018



Data Center ▶ Networks

Why does the world need the new 'Akraino' network edge stack'?

Because devices on massive networks need services, says Linux Foundation orchestration guru Arpit Joshipura

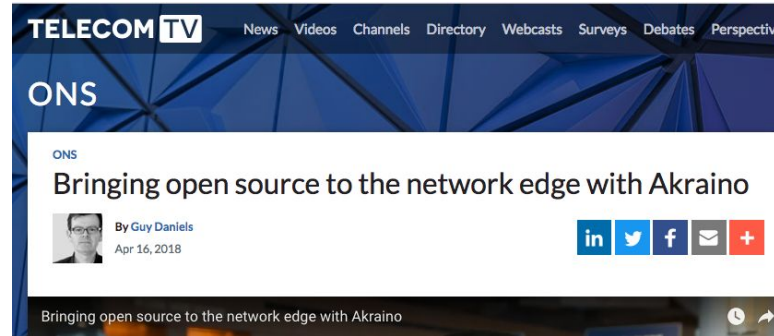
By Richard Chirgwin 3 May 2018 at 05:58

7 SHARE ▼

Over the next couple of quarters, a team of developers will start fleshing out the roadmap of a Linux Foundation effort A&T ignited in February, when the telco giant donated code to the Akraino project.

The aim is to create a "network edge stack" that plugs a gap in the open source world, between the OpenStack/OPNFV-built clouds home to compute and telco infrastructure, and the proliferating varieties of end user devices.

The Register's networking desk spoke to the Linux Foundation's GM of Networking and Orchestration, Arpit Joshipura, to understand why an "open edge stack" is needed.



Why Edge Why Akraino

- ▶ First Open Source Project at Edge gathers momentum, complements other standards & consortiums
- ▶ Edge now an integral part of Open Source Software Ecosystem

Welcome to CIMI Corporation's Public Blog

Thoughts on industry events from Tom Nolle, President of CIMI Corp. Please read the

The Hardware and Platform Requirements for Edge Computing

that specific. A more general approach is represented by the Linux Foundation Akraino Edge Stack project, supported by Intel, Wind River, and a host of operators, including AT&T. The key point for the foundation is the creation of an optimized platform for edge hosting, which includes containers.

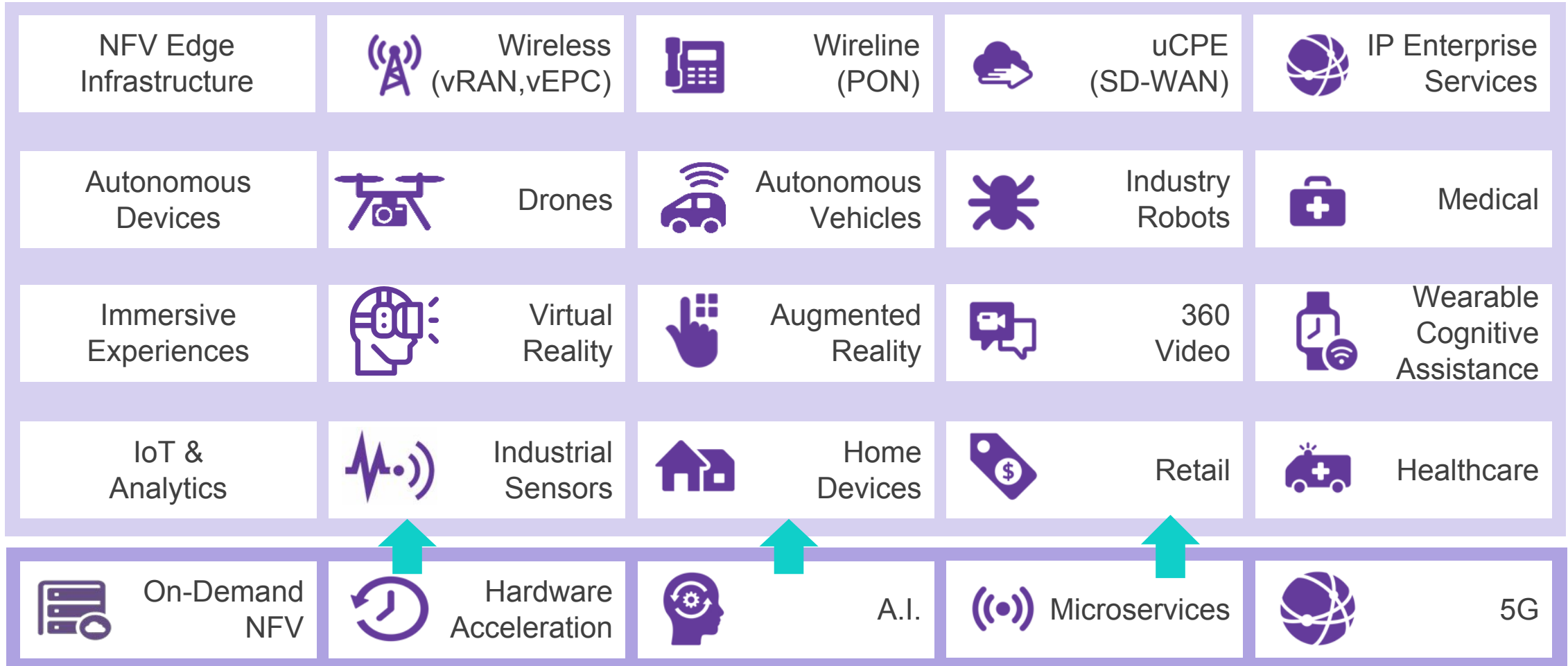
The problem with containers is the management of the scheduling process. Container deployment isn't fast enough to make it ideal for hosting very short-lived processes. Remember that event-driven functions are typically expected to load on demand. One way to improve the handling of events in container systems is to rely on a lot of memory and forget the idea that you have to load on demand. With that proviso, the Akraino approach seems to be the best overall path to a generalized software platform at the edge.

Why Edge?



Emerging Technologies in IOT and Networks

are demanding lower latency and accelerated processing at the edge



New Edge Requires End-to-End Automation & Interworking

Services

Cloud Services

Residential Services

Enterprise Services

IOT Services

AI Services

Software & Automation



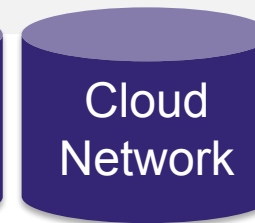
Cloud Automation

Network Automation

IOT Automation

Infrastructure

Enterprise
Software
Defined
Data
Centers
(SDDC)








Public/Hybrid
Cloud Service
Providers
Cloud Hosting
Private Cloud
Providers
Web Service
Providers

Service
Providers
MSO/CableCo



Edge Enables New Business Ecosystem & Cost Savings

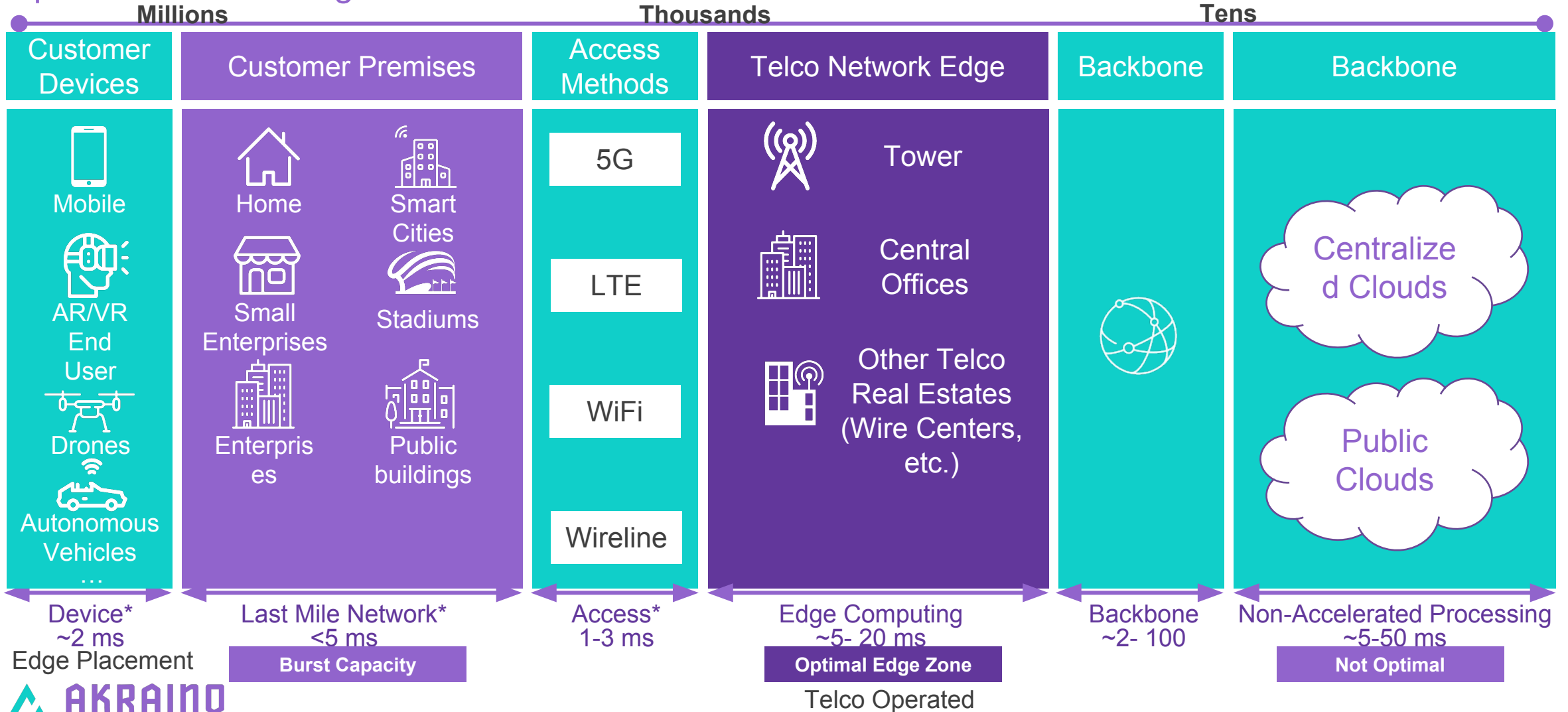
Users (Enterprises) 	New Services	Open Source-Based		
Application Developers 	New Edge Applications	Global Open Source Collaboration		
Public Cloud Provider 	New Cloud Services	More Footprint	ROI – New Offerings to Existing Customer Base	
Suppliers 	Infrastructure (H/W)	Support as a Service	Extended Portfolio	
Telco Operator 	Edge Processing – Reduced Backhaul Traffic	NFV Infrastructure (5G, Etc.)	Edge Services (Public Edge Cloud, API, Analytics)	Edge Real Estate

Edge Use Cases & Akraino Edge Stack in Context of Open Source Landscape



Use Case 1: Operator's Owned Network Edge

Optimal Zone For Edge Placement



* Estimates

Use Case 2: IOT Driving the New Edge for Enterprise Retail, Transportation, Healthcare...



Cloud Automation

Network Automation

IOT Automation



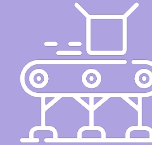
Retail



Hospitality



Healthcare



Manufacturing



Transportation
& Logistics



Enterprises



Enterprise
& Data
Centers



Public Buildings

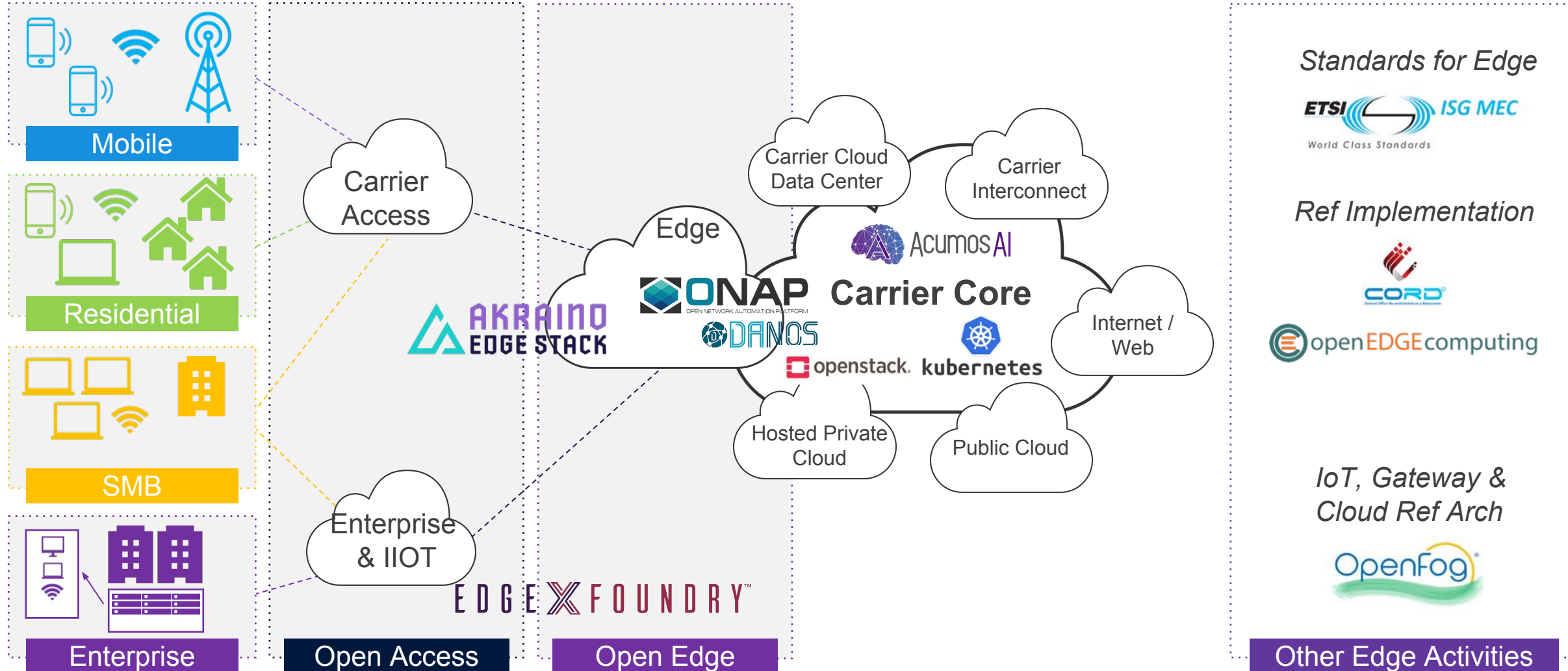


“Southbound” Devices, Sensors and Actuators



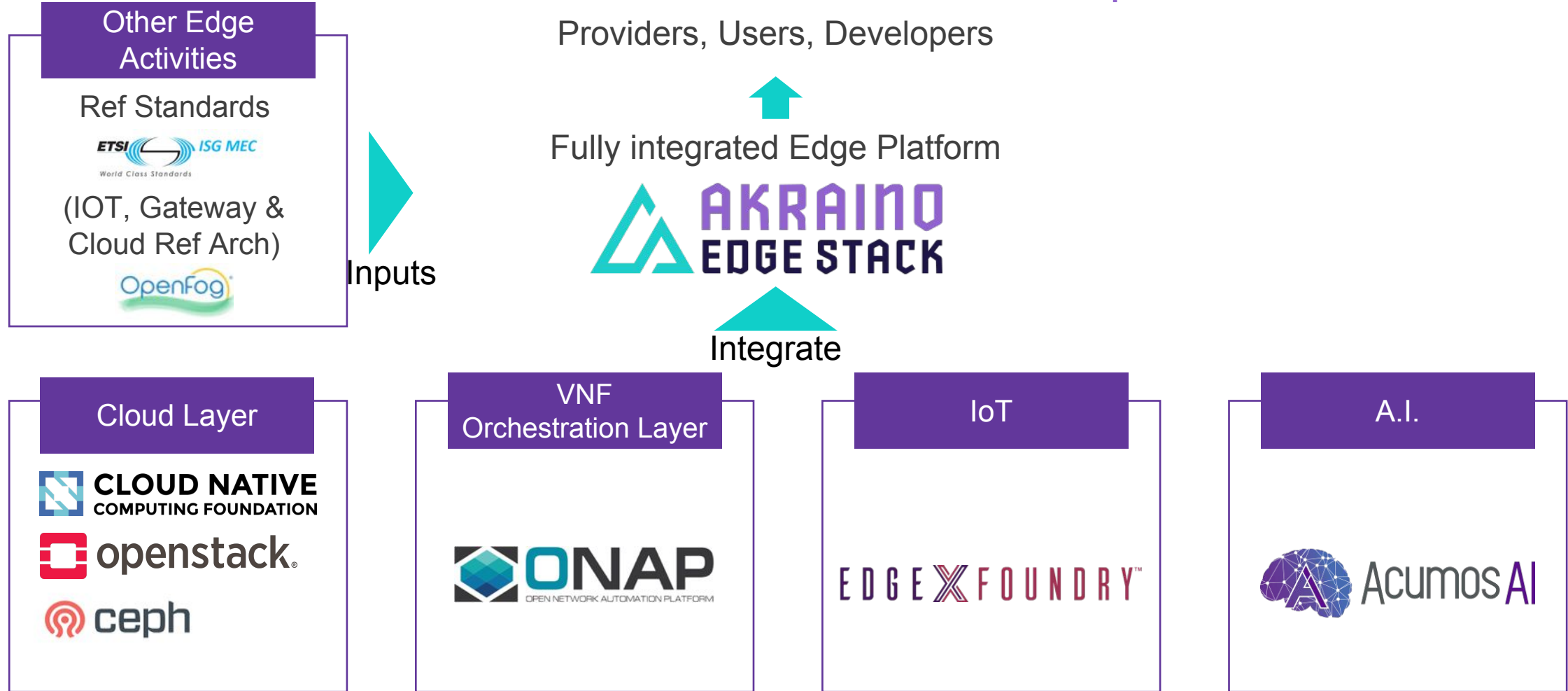
Bringing It All Together – LF Open Source Edge

With Complementary Standards, Ref Arch and Ref Implementations

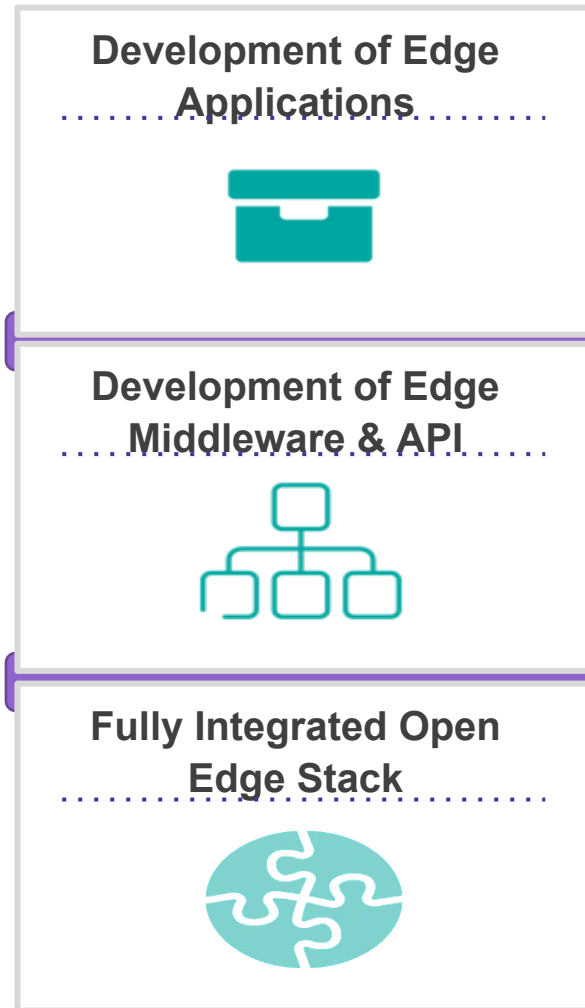


Akraino is Complementary

to Standards, Reference Architectures and Reference Implementations



What is Akraino? Everything About Edge – Akraino is the Edge Project



- Develop Edge applications and create an app/VNF ecosystem

- Development of Edge API, Middleware, SDKs
- Cross Platform Interoperability (3rd party Clouds)

- Fully integrated, working Edge blueprints
- Edge Stack Life Cycle - CI/CD & Tooling
- Upstream collaboration



Akraino Executive Summary



Zero Touch Edge Cloud
Automation

Akraino is an Edge project targeted to

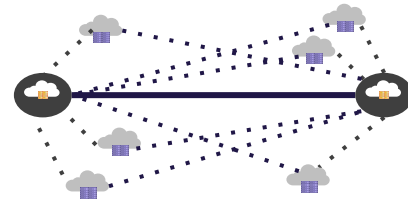
- › Address Telco, Enterprise and Industrial IoT use cases

Akraino Scope:

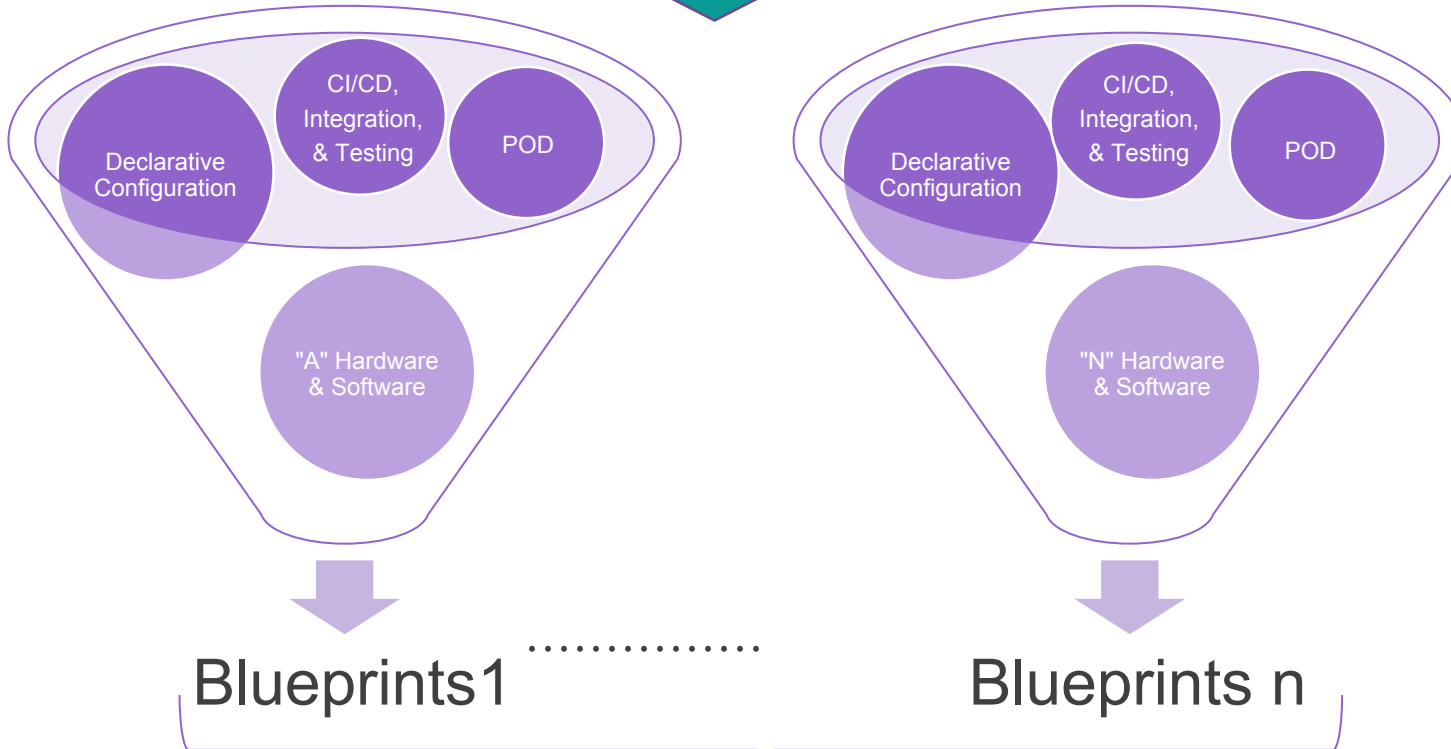
- › Develop Edge Middleware, SDKs, applications and create an app/VNF ecosystem
- › Develop Edge API and framework for interoperability with 3rd party Edge providers & hybrid cloud models
- › Collaborate with upstream community (CI/CD & upstream process support)
- › Create Blueprints (integrated stack) to address Edge use cases:
 1. (Telco/Hosted) Edge: eg include ONAP, OpenStack, Airship, etc (eg large/medium POD)
 2. (Telco/hosted) Remote edge: Stack scale from single node to Enterprise use cases (eg IOT)
 3. (OTT/Enterprise/Telecom) Stack for remote edge locations (1000s) with disaggregated hardware
 4. (OTT/IIOT/Enterprise) Develop a lightweight stack for low latency remote edge and IOT gateway



Akraino Blueprints & release



Blueprints



Akraino Release

TSC will provide acceptance criteria for release

Blueprints — Approved and tested declarative configuration based on use cases, set of Hardware & Software, Point of delivery (POD).

Reference Architecture — Defines Akraino building blocks

Declarative Configuration — Hides lower layer complexity to user

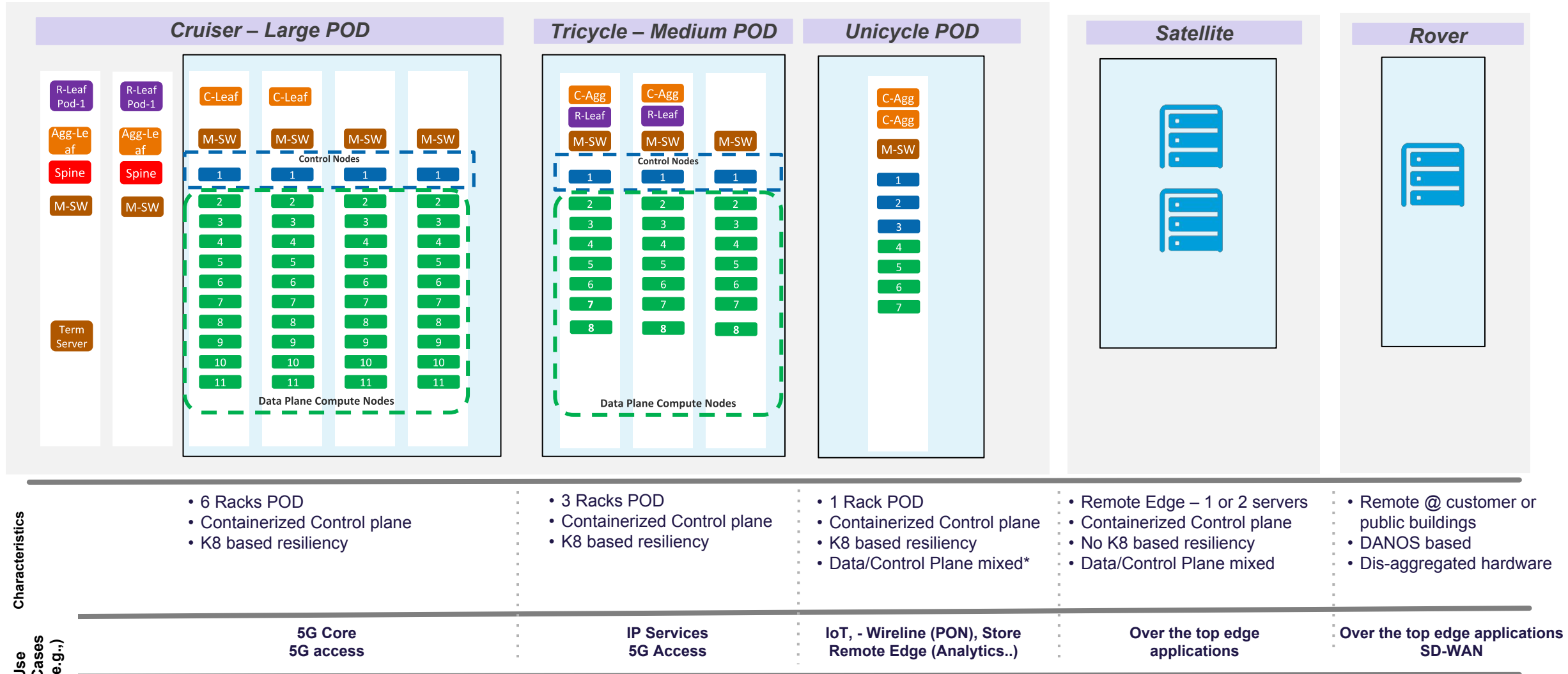
CI/CD, Integration & Testing Tools — Drive product quality

Akraino release — End Product

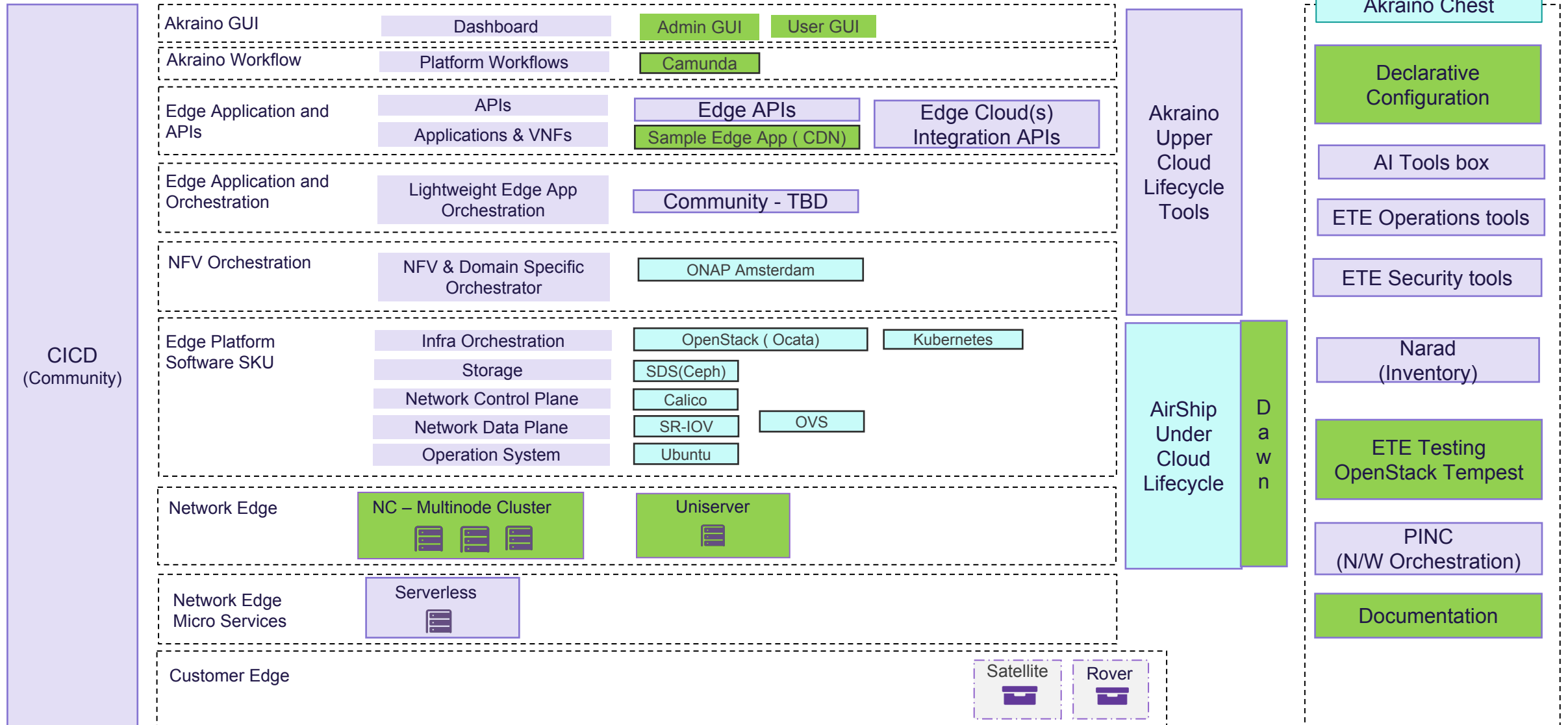
Edge Point of Delivery (POD)

Hosted @ Telco or Provider (e.g., Network Cloud)

Customer's Premises

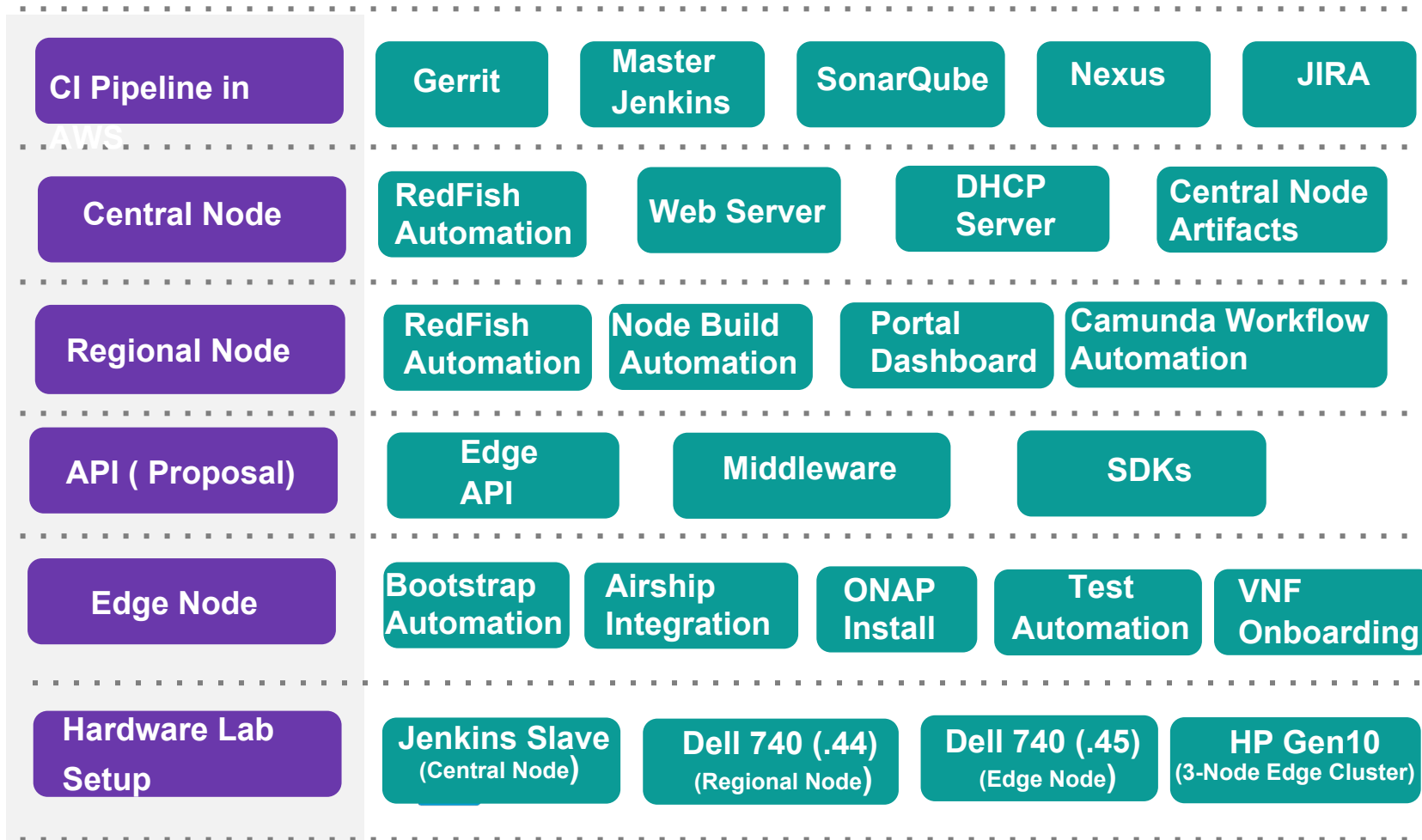


Akraino Network Cloud Blueprint (Seed Code)



Source: AT&T

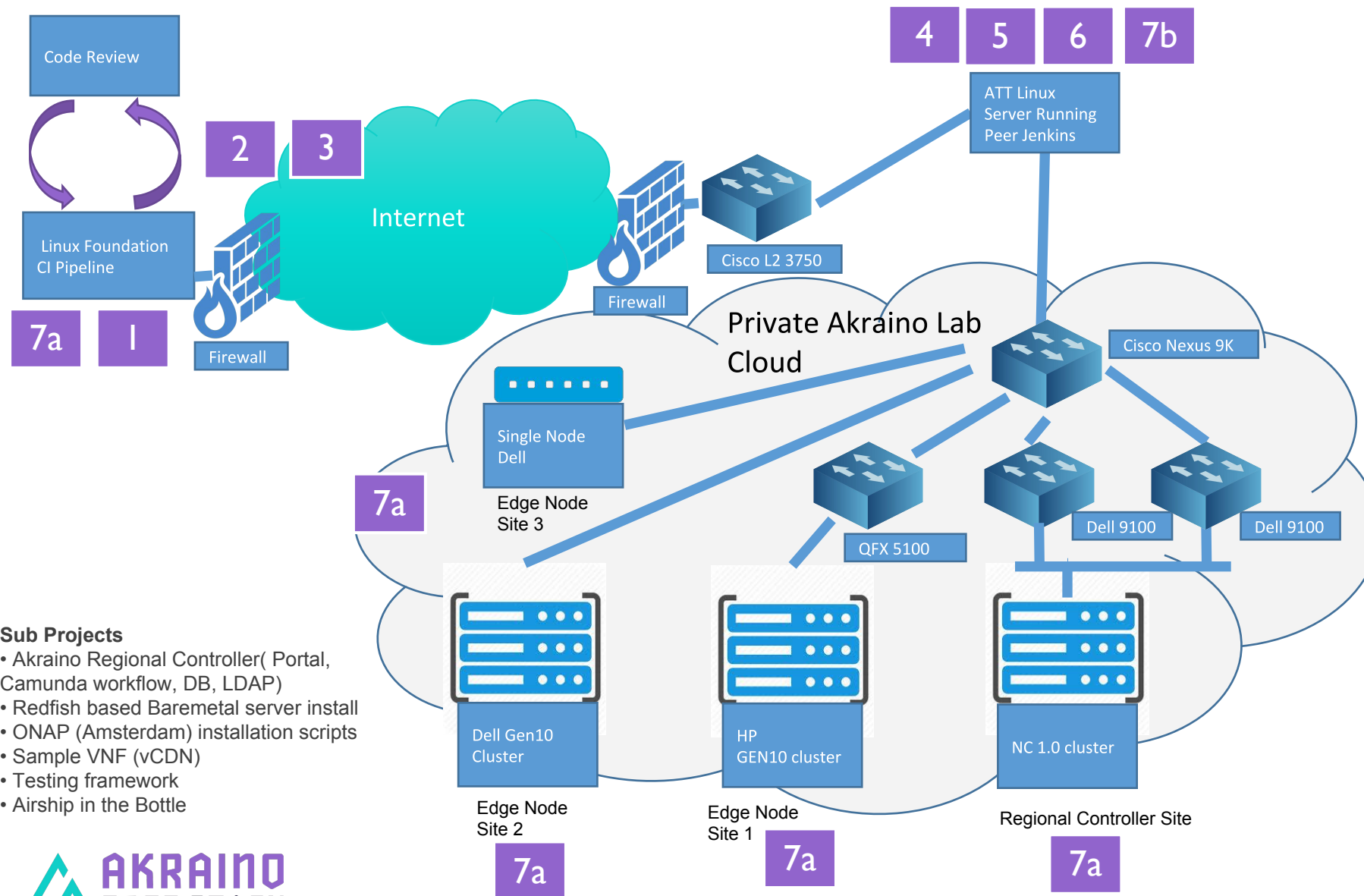
What are our efforts?



- Allows to mimic CI Pipeline in LF
- Jenkins Slave to mimic Central Node
- Support Regional Node Build automation
- OS Bootstrap to App Install
- Portal driven orchestration
- Integration with Edge Applications
- Cross platform interoperability
- End-to-End Stack Integration
- Fully Automated
- End-to-End Emulation of Akraino Edge Automation

CICD Integration with AT&T Akraino Lab

Tasks List



Sub Projects

- Akraino Regional Controller(Portal, Camunda workflow, DB, LDAP)
- Redfish based Baremetal server install
- ONAP (Amsterdam) installation scripts
- Sample VNF (vCDN)
- Testing framework
- Airship in the Bottle



1. Commit made to LF Gerrit by the relevant developer. Reviewers will be assigned in Gerrit to approve the changes
2. Git pull is performed on the latest code commit by the Jenkins residing in the Linux Foundation.
3. LF Jenkins will also resolve dependencies and do Sanity testing and push code to LF Nexus
4. LF Jenkins notifies peer Jenkins about new code in LF Nexus.
5. Peer Jenkins Job pulls approved code from repo based on trigger from LF Jenkins
6. Peer Jenkins deploys code in the CD cluster. (Based on criteria such a frequency, type of bug, and scope of test)
- 7a. Verifier will approve for code merge in LF Gerrit, if check in step 6 is successful (OR)
- 7b. Peer Jenkins can upload logs and (Success/Fail) status to LF Jenkins

Discussion on Scope

1. Community Target/Vision - Focus on the important blueprints and pull a release together by this year to create a community momentum.
2. Blueprint summitters are expected to provide at least minimum resources to develop and maintain the blueprints until community mass is achieved.
3. Akraino is best to host horizontal items which span across multiple opensource and does not have a home in the upstream communities (verticals), e.g., Resiliency, ETE APIs, security, etc.,
4. Support multiple blueprints but not too many. Setup criteria to accept the blueprint to Akraino and into an Akraino release.
5. Workstreams to collaborate with upstream communities to develop missing features to enable edge.

Review of TSC Structure

Composition:

- **Inception Period:** the voting members of the TSC will consist of one appointee of each General Member, up to 15 appointment TSC members. The TSC may add up to 5 additional members from among the Active Contributors of the project.
- **Transition Point:** The TSC will institute a plan to transition to an election-based membership on the TSC from among the Active Contributors to the Project by six months following the inception of the Project or such other time as determined by the TSC.

Meetings / Technical Participation

- Meetings will be open to all community
 - **ACTION:** Determine Date for first TSC Meeting
- Technical participation, by becoming a contributor or maintainer is open to all (provided compliance with Project Charter)

Community Considerations

1. Analyst Reports on Top Edge Apps and revenue generation (target ONS EU, Sept)
2. Possibility of Edge Mini Summit at ONS EU (Amsterdam – Sept 25-28)
3. Creation of Edge White Paper by ONS EU

TSC Chair Election

› TSC Chair

- › serves as a voting member of the Governing Board
- › acts as a liaison between the Governing Board and technical leadership of the Project.
- › Please note: there is a considerable time commitment for the TSC Chair position.

› Proposed Election Process

- › Open nomination period following today's meeting via email. Nominees should submit a brief bio and statement of intent to afisher@linuxfoundation.
- › Close the nomination period on Thursday, August 2nd, 5 p.m. PT
- › On Friday, August 3rd, we will distribute collected bios and statement of interest and open the voting period. Voting instructions will be included in this distribution.
- › We will close the voting period on Thursday, August 9th, 5 p.m. PT and announce the results.

Plan for Future Meetings

- › We are proposing weekly meetings of the TSC at this time (6 a.m.PT/9 a.m. ET on Thursdays via Zoom)
- › TSC should determine if IRC will be used to record the actions and votes of meetings or if they would like to determine an alternative record management system
- › Projects can meet as they see fit, using the meeting approach (conference calls, IRC, Slack, etc.) that works best for each particular project.

For More Information, Please
Visit www.akraino.org

